

REMARKS

It is respectfully requested that this application be reconsidered in view of the above amendments and the following remarks and that all of the claims remaining be allowed.

Claim Amendments

Claims 11 and 12 have been amended to recite the polypeptide of residues 286-470 of SEQ ID NO:2. Support for this recitation can be found, for example, in the last paragraph on page 26 to the first paragraph on page 27, and page 11, line 35 to page 12, line 2. The support is discussed in detail in the next section, Rejection Under 35 U.S.C. §112.

New claims 23-25 have been added, reciting the polypeptide of residues 295-313, 314-378, and 379-398 of SEQ ID NO:2, respectively. Support for these fragments can be found, for example, at page 22, lines 5-9, as discussed in detail below.

No new matter has been added by these amendments. The Examiner is hereby requested to enter these amendments.

Applicants submit that all claim amendments presented herein or previously are made solely in the interest of expediting allowance of the claims and should not be interpreted as acquiescence to any rejections or ground of unpatentability. Applicants reserve the right to file at least one continuing application to pursue any subject matter that is canceled or removed from prosecution due to the amendments.

Rejection Under 35 U.S.C. §112 (Paragraphs 6-8 of the Office Action)

The rejection of claims 11, 12, 15, 21 and 22 under 35 U.S.C. §112, first paragraph, as allegedly containing new matter, is respectfully traversed for the reasons set forth below.

As the Office Action correctly points out, the standard of new matter is that of the written description requirement, namely whether the claimed subject matter is described in the

specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. In order to comply with the written description requirement, the specification "need not describe the claimed subject matter in exactly the same terms as used in the claims; it must simply indicate to persons skilled in the art that as of the [filing] date the applicant had invented what is now claimed." *All Dental Prodx LLC v. Advantage Dental Products Inc.*, 64 USPQ2d 1945, 1948 (Fed. Cir. 2002).

Claim 21 is directed to a binding compound comprising an antigen binding site from an antibody which specifically binds to the polypeptide of residues 399-470 of SEQ ID NO:2. The specification discloses that the term "polypeptide" includes a significant fragment (page 26, lines 27-28, emphasis added), particularly those having ends corresponding to structural domain boundaries, e.g., transmembrane segments or identified motifs (page 26, last line to page 27, line 2, emphasis added). The specification further discloses that SEQ ID NO:2, encoding DC-STAMP, has a 72-amino acid cytoplasmic tail that contains several serine residues, two of which might serve as a target for phosphorylation (page 65, lines 34-37). The 72-amino acid cytoplasmic tail (corresponding to residues 399-470 of SEQ ID NO:2) is thus an identified structural domain. Moreover, DC-STAMP is similar to a G-protein coupled receptor (page 20, lines 12-34), and phosphorylation of the C-terminal serines typically regulates the activity of the receptor (page 21, lines 3-10). Therefore, the 72-amino acid cytoplasmic tail is clearly a significant fragment of DC-STAMP. Taken together, one skilled in the relevant art would recognize that the inventors, at the time the application was filed, had possession of this polypeptide, and hence the binding compounds thereof.

Similarly, claim 11 is directed to a binding compound comprising an antigen binding site from an antibody which specifically binds to the polypeptide of residues 286-470 of SEQ ID NO:2. As pointed out in the response filed October 1, 2003, the specification discloses that DC-STAMP has three predicted phosphorylation sites in the C-terminal portion, thr286-lys288, lys426-ser429 and arg438-ser441 (page 11, line 35 to page 12, line 2). Since DC-STAMP is a G-protein coupled receptor for which phosphorylation is important, a skilled artisan would have

understood that Applicants contemplated a C-terminal polypeptide containing all the phosphorylation sites, namely residues 286-470, as a significant fragment of SEQ ID NO:2. Therefore, Applicants were in possession of this polypeptide, as well as binding compounds thereof.

Claims 12, 15 and 22 depend, directly or indirectly, from claim 11, further reciting elements that are well described. Therefore, these claims satisfy the written description requirement as well.

Accordingly, withdrawal of this rejection is respectfully requested.

Applicants further submit that newly added claims 23-25 contain no new matter as they satisfy the written description requirement. Claims 23-25 depend from claim 11, further reciting the polypeptide of residues 295-313, 314-378, and 379-398 of SEQ ID NO:2, respectively. It is disclosed in the specification that transmembrane segment TM6 contains residues 295-313 and TM7 contains residues 379-398 (page 22, lines 5-9). As discussed above, transmembrane segments are significant fragments specifically contemplated in the present application (page 26, last line to page 27, line 2). Therefore, claims 23 and 25 do not contain new matter. Similarly, the loops between transmembrane segments, such as residues 314-378, are also structural domains. The specification discloses that the domain of residues 314-378 contains a glycosylation site (page 11, lines 33-36), which would have been understood by a skilled artisan as a good antigenic polypeptide. Thus, the specification reasonably conveys to one skilled in the art that Applicants, at the time the application was filed, had possession of the polypeptide of residues 314-378. Accordingly, claim 24 is also adequately described.

Priority (Paragraph 3 of the Office Action)

The Office Action alleges that the present application is not entitled to the benefit of the filing date of the priority application, U.S. Provisional Application No. 60/165,438 ("the '438 application"), filed November 15, 1999. Applicants submit that all the support described above for the claimed invention is also included in the '438 application, at the same page and line

numbers (except that the description of the 72-amino acid cytoplasmic tail appears at page 66, lines 34-37 in the '438 application, rather than page 65, lines 34-37). Therefore, the claimed invention is fully supported by the '438 application and entitled to the benefit of its filing date, November 15, 1999.

Rejection Under 35 U.S.C. §102 (Paragraphs 4 and 5 of the Office Action)

The rejection of claims 11, 12, 15, and 22 under 35 U.S.C. §102(e) in view of U.S. Patent Application Publication No. US2002/0064818 ("the '818 application") is respectfully traversed for the reasons set forth below.

The standard of anticipation under 35 U.S.C. §102 is that each and every element of the claim must be found in the cited reference. *In re Marshall*, 198 USPQ 344 (CCPA 1978).

The '818 application discloses SEQ ID NOs:98, 140, 141 and 142, which overlap with SEQ ID NO:2 of the present application. A sequence alignment is attached herewith as Exhibit A, wherein SEQ ID NO:2 of the present application is indicated as "Zlot", and SEQ ID NOs:98, 140, 141 and 142 of the '818 application are indicated as "98", "140", "141", and "142", respectively.

SEQ ID NOs:98, 140, 141 and 142 of the '818 application are not all entitled to the priority date of the '818 application. The '818 application is a continuation-in-part of PCT International Application Serial No. PCT/US00/24008 (WO01/18022), filed August 31, 2000, which claims the benefit of U.S. Provisional Applications No. 60/152,317 ("the '317 application"), filed September 3, 1999, and 60/152,315 ("the '315 application"), filed September 3, 1999. SEQ ID NO:98 of the '818 application was first disclosed in WO01/18022, filed August 31, 2000, but not in the prior provisional applications. Since the presently claimed invention is entitled to the benefit of the filing date of November 15, 1999, WO01/18022 or SEQ ID NO:98 of the '818 application is not prior art with respect to the present application.

Of the prior provisional applications, the '315 application does not appear to disclose sequences that are similar to SEQ ID NO:2 of the present application. The '317 application discloses a sequence (SEQ ID NO:48 in the '317 application) that is the same as SEQ ID NO:140 of the '818 application, except for 3 additional amino acids at the C-terminus. SEQ ID NO:140 of the '818 application or SEQ ID NO:48 of the '317 application does not share any sequence identity with residues 286-470 of SEQ ID NO:2 of the present application. Since the claimed invention relates to binding compounds that recognize a polypeptide of residues 286-470 of SEQ ID NO:2 or fragments thereof, the '818 application does not teach each and every element of the claimed invention.

Accordingly, the standard of anticipation is not met, and withdrawal of this rejection is respectfully requested.

Conclusions

For the reasons set forth above, Applicants submit that the claims of this application are patentable. Reconsideration and withdrawal of the Examiner's objections and rejections are hereby requested. Allowance of the claims remaining in this application is earnestly solicited.

In the event that a telephone conversation could expedite the prosecution of this application, the Examiner is requested to call the undersigned at (650) 839-5044.

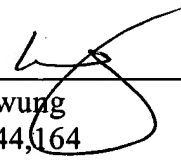
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Please apply any charges or credits to deposit account 06-1050.

Respectfully submitted,

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